



BP File No. 9351-46

#6
12.23.02

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of David FRANK et al.)
Serial No.: 09/854,362)

Filed: May 15, 2001)

For: APPARATUS FOR AND METHOD OF FORMING SEALS IN FUEL CELLS AND
FUEL CELL STACKS)

Date: December 13, 2002

The Commissioner of Patents and Trademarks
Washington, D.C. 20231, U.S.A.

Dear Sir:

PETITION TO MAKE SPECIAL UNDER 37 CFR 1.102(c)

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DEC 16 2002
TECHNOLOGY CENTER 1700

In accordance with 37 CFR 1.102(c), applicants are filing a petition to make the above-referenced patent application special, in order to advance examination of the patent application in the United States Patent and Trademark Office.

Applicants respectfully assert that the invention described and claimed in the patent application will materially enhance the quality of the environment and will materially contribute to the development and conservation of energy resources, as will be described in the following remarks.

Embodiments of the present invention relate to the field of hydrogen-based fuel cells and fuel cell stacks. Fuel cells technology, utilizing hydrogen as fuel, is known to provide the following benefits:

1. Fuel cells discharge zero, or extremely low, emissions of greenhouse gases to the atmosphere.

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13000 BP

2. In contrast to the potentially devastating environmental effects due to spillage of liquid hydrocarbons, a hydrogen leak into an open environment would evaporate with the only by-product being water.

3. In contrast to having to drill for fossil fuels, there are methods for producing hydrogen that do not require damaging intrusion on the ecosystem. Moreover, reserves of fossil fuels are finite whereas the supply of hydrogen is unlimited.

4. Fuel cells produce power at efficiencies far higher than conventional power systems, such as the internal combustion engine. Overall, fuel cells are expected to have energy conversion efficiencies between two and four times that of conventional energy generation systems, thereby reducing the demand for the primary energy source, the hydrogen. Because of a fuel cell's high efficiency, consumers of electricity benefit from the reduced cost of power.

At the present time, there are a number of factors hindering further development of fuel cells and widespread adoption of fuels in homes and in industry. One of these is the simple mechanical complexity of a conventional fuel cell stack. A current design can have hundreds of seals for the various fluids, e.g. hydrogen, air or other oxidant, and coolant. Each seal is usually relatively large and has a complex shape that must be assembled with some precision. Once all the plates and seals of a stack are assembled, they are clamped together with bolts or the like, with the intention of ensuring that good seals are achieved. If any one seal fails, the whole stack has to be dismantled, disrupting all the seals. Consequently, assembly and repair times and costs are high, and achieving reliable seals in conventional stack designs is difficult.

As described in the summary of the invention in the specification of the present patent application, the invention is intended to over the disadvantages of conventional fuel cell stacks and to provide the advantages of:

- a) reducing the overall dimensions of a fuel cell stack of a given power;
- b) increasing the overall durability of the fuel cell stack; and
- c) providing a simple and more economic construction for fuel cell stacks.

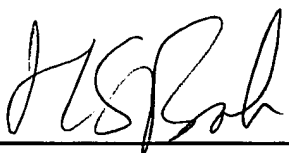
A simpler construction is provided by eliminating preformed seals entirely. The plates of the stack are then configured so that, when assembled, they define a groove network extending through the stack. A sealing material in liquid form is then injected into the grooves to fill them, and the sealing material is then cured. The sealing material can bond to the various surfaces to form a seal and inherently can accommodate variations in tolerances and dimensions.

These advantages mean that fuel cell stacks will be a viable economical alternative to existing sources of energy.

Since the present invention promotes the manufacture and use of hydrogen-based fuel cells, this will contribute to the conservation of fossil fuels and to the development of an alternative to fossil fuels. This will also materially enhance the quality of the environment, since as explained hereinabove, fuel cells discharge zero or extremely low emissions of greenhouse gases to the atmosphere and a potential hydrogen leak into an open environment would evaporate leaving only water.

Accordingly, applicants respectfully request that the above-referenced patent application be made special.

Respectfully submitted,

 31,696

H. Samuel Frost
/mp

Please type a plus sign (+) inside this box → ☐

PTO/SB/21 (08-00)

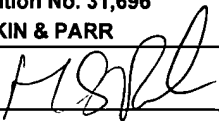
Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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TRANSMITTAL FORM <i>(to be used for all correspondence after initial filing)</i>	Application Number	0/854,362	
	Filing Date	May 15, 2001	
	First Named Inventor	FRANK, David G.	
	Group Art Unit	1745	
	Examiner Name		
Total Number of Pages in This Submission		Attorney Docket Number	9351-046

ENCLOSURES (check all that apply)		
<input checked="" type="checkbox"/> Fee Transmittal Form <input checked="" type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment / Response <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Assignment Papers (for an Application) <input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) Remarks	<input type="checkbox"/> After Allowance Communication to Group <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): Petition to Make Special Return Receipt Postcard

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT	
Firm or Individual name	H. Samuel Frost Registration No. 31,696 BERESKIN & PARR
Signature	
Date	

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FEE TRANSMITTAL for FY 2003

Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) 130.00

Complete if Known

Application Number 09/854,362
Filing Date May 15, 2001
First Named Inventor FRANK
Examiner Name
Art Unit 1745
Attorney Docket No. 9351-046

METHOD OF PAYMENT (check all that apply)

☒ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☒ Deposit Account:

Deposit Account Number
Deposit Account Name

022095

Bereskin & Parr

The Commissioner is authorized to: (check all that apply)

☐ Charge fee(s) indicated below ☒ Credit any overpayments
☒ Charge any additional fee(s) during the pendency of this application
☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1001 740	2001 370	Utility filing fee	
1002 330	2002 165	Design filing fee	
1003 510	2003 255	Plant filing fee	
1004 740	2004 370	Reissue filing fee	
1005 160	2005 80	Provisional filing fee	
SUBTOTAL (1) (\$)			0.00

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims	Extra Claims	Fee from below	Fee Paid
Independent	- 20** =	X	0.00
Multiple Dependent	- 3** =	X	0.00

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description
1202 18	2202 9	Claims in excess of 20
1201 84	2201 42	Independent claims in excess of 3
1203 280	2203 140	Multiple dependent claim, if not paid
1204 84	2204 42	** Reissue independent claims over original patent
1205 18	2205 9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) (\$)

**or number previously paid, if greater. For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1051 130	2051 65	Surcharge - late filing fee or oath	
1052 50	2052 25	Surcharge - late provisional filing fee or cover sheet	
1053 130	1053 130	Non-English specification	
1812 2,520	1812 2,520	For filing a request for ex parte reexamination	
1804 920*	1804 920*	Requesting publication of SIR prior to Examiner action	
1805 1,840*	1805 1,840*	Requesting publication of SIR after Examiner action	
1251 110	2251 55	Extension for reply within first month	
1252 400	2252 200	Extension for reply within second month	
1253 920	2253 460	Extension for reply within third month	
1254 1,440	2254 720	Extension for reply within fourth month	
1255 1,960	2255 980	Extension for reply within fifth month	
1401 320	2401 160	Notice of Appeal	
1402 320	2402 160	Filing a brief in support of an appeal	
1403 280	2403 140	Request for oral hearing	
1451 1,510	1451 1,510	Petition to institute a public use proceeding	
1452 110	2452 55	Petition to revive - unavoidable	
1453 1,280	2453 640	Petition to revive - unintentional	
1501 1,280	2501 640	Utility issue fee (or reissue)	
1502 460	2502 230	Design issue fee	
1503 620	2503 310	Plant issue fee	
1460 130	1460 130	Petitions to the Commissioner	130.00
1807 50	1807 50	Processing fee under 37 CFR 1.127(q)	
1806 180	1806 180	Submission of Information Disclosure Stmt	
8021 40	8021 40	Recording each patent assignment per property (times number of properties)	
1809 740	2809 370	Filing a submission after final rejection (37 CFR 1.129(a))	
1810 740	2810 370	For each additional invention to be examined (37 CFR 1.129(b))	
1801 740	2801 370	Request for Continued Examination (RCE)	
1802 900	1802 900	Request for expedited examination of a design application	
Other fee (specify)			
*Reduced by Basic Filing Fee Paid			
SUBTOTAL (3) (\$)			130.00

SUBMITTED BY

Name (Print/Type) H. Samuel Frost

Signature

Registration No. (Attorney/Agent)

31,696

(Complete if applicable)

Telephone (416) 364-7311

Date

December 13, 2002

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This collection of information is required by 37 CFR 1.17 and 1.27. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

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